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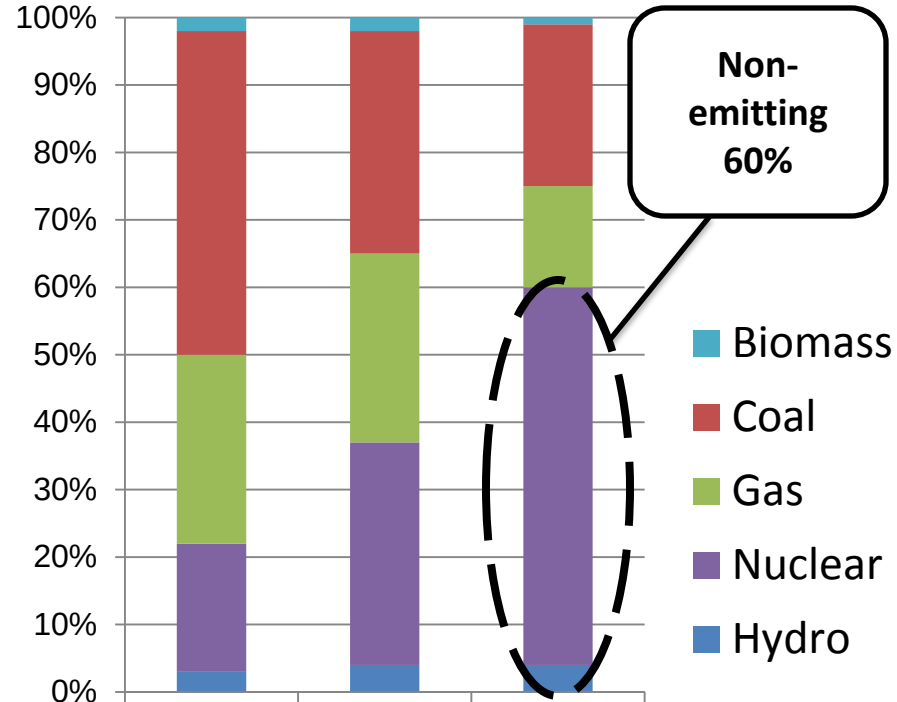
# Nuclear Construction Update
# June 26, 2013

| **Stephen A. Byrne** – Chief Operating Officer
| **Jeffrey B. Archie** – Chief Nuclear Officer

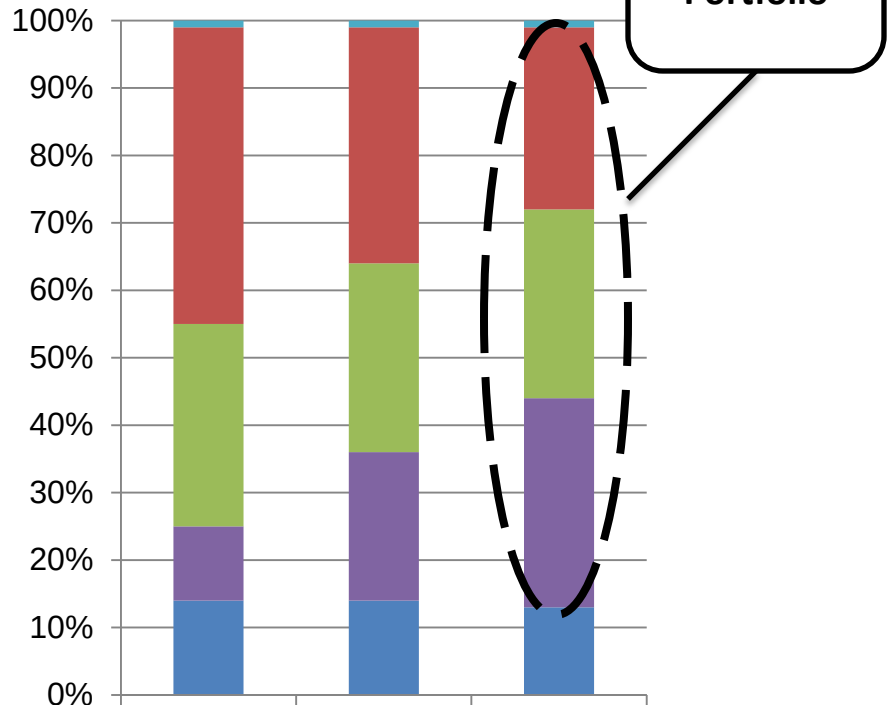
# Generation Mix by Dispatch and Capacity

## By Dispatch




| | 2012 | 2018 | 2019 |
|---|---|---|---|
| Biomass | 2% | 2% | 1% |
| Coal | 48% | 33% | 24% |
| Gas | 28% | 28% | 15% |
| Nuclear | 19% | 33% | 56% |
| Hydro | 3% | 4% | 4% |

## By Capacity




| | 2012 | 2018 | 2019 |
|---|---|---|---|
| Biomass | 1% | 1% | 1% |
| Coal | 44% | 35% | 27% |
| Gas | 30% | 28% | 28% |
| Nuclear | 11% | 22% | 31% |
| Hydro | 14% | 14% | 13% |

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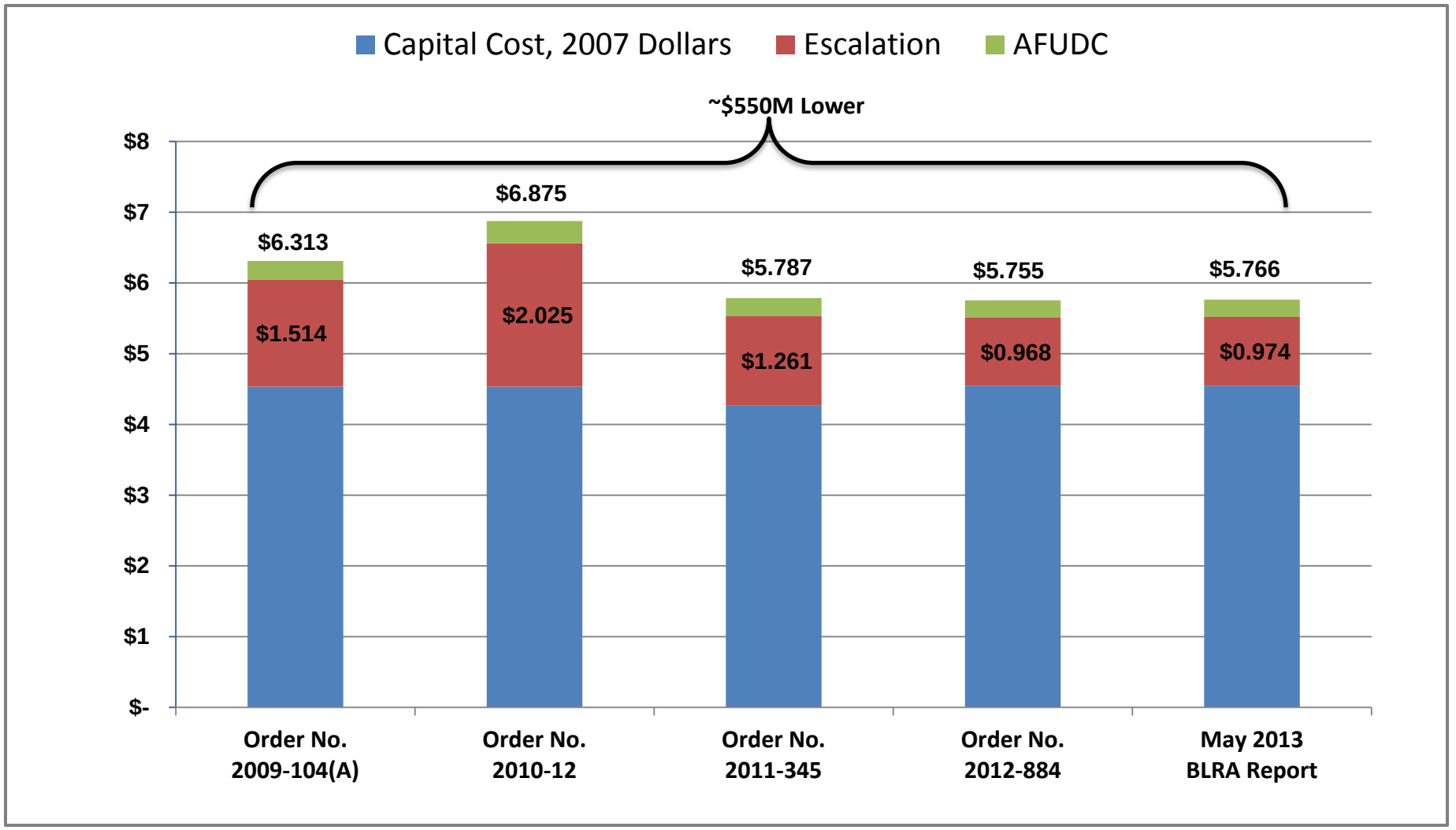
# New Nuclear Projected Costs (in billions)




Note: Reflects new nuclear projected costs as filed May 2013 in BLRA Quarterly Report; SCE&G 55% share

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# Total New Nuclear Staffing

| ***Group*** | ***Filled*** |
|---|---|
| Management | 4 |
| NND | 98 |
| Operational Readiness | 162 |
| Training | 50 |
| Unit 1 | 31 |
| SCANA IT | 7 |
| SCANA Insurance | 1 |
| SCANA – Financial | 11 |
| Total | 364 |

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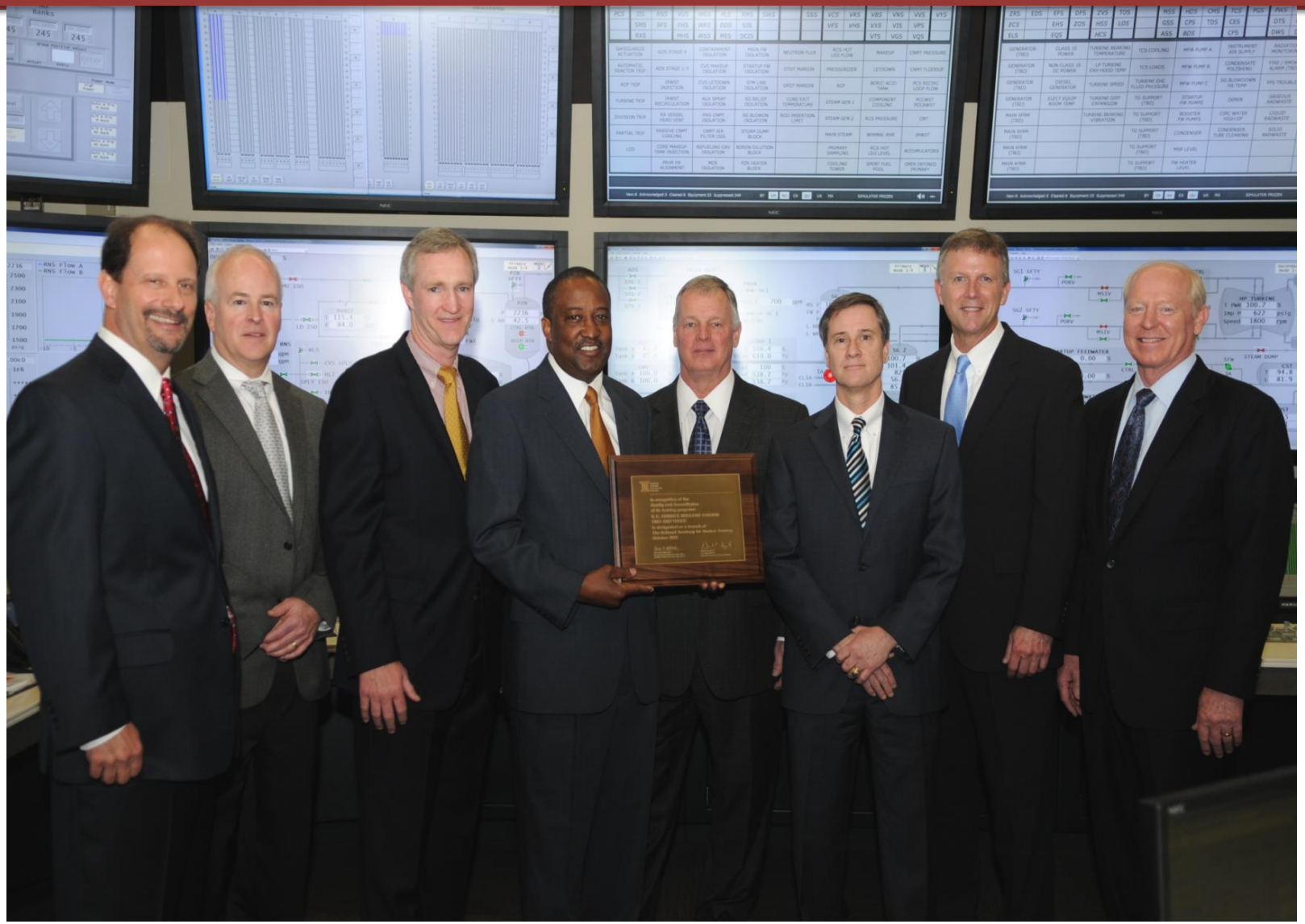
# Operator Training Programs Accredited



# Consortium Changes

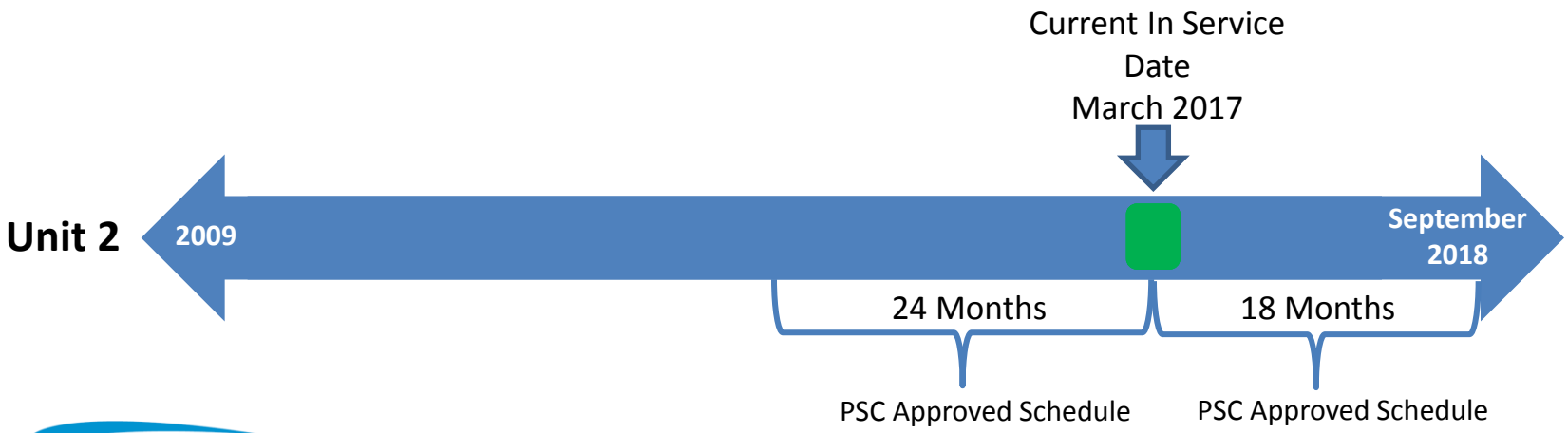
- Westinghouse Project Lead passed away
  - Experienced person acting
  - Search underway for successor
- CB&I acquired Shaw Feb 2013
  - Initial exposure to new team positive

# Unit 2 In Service

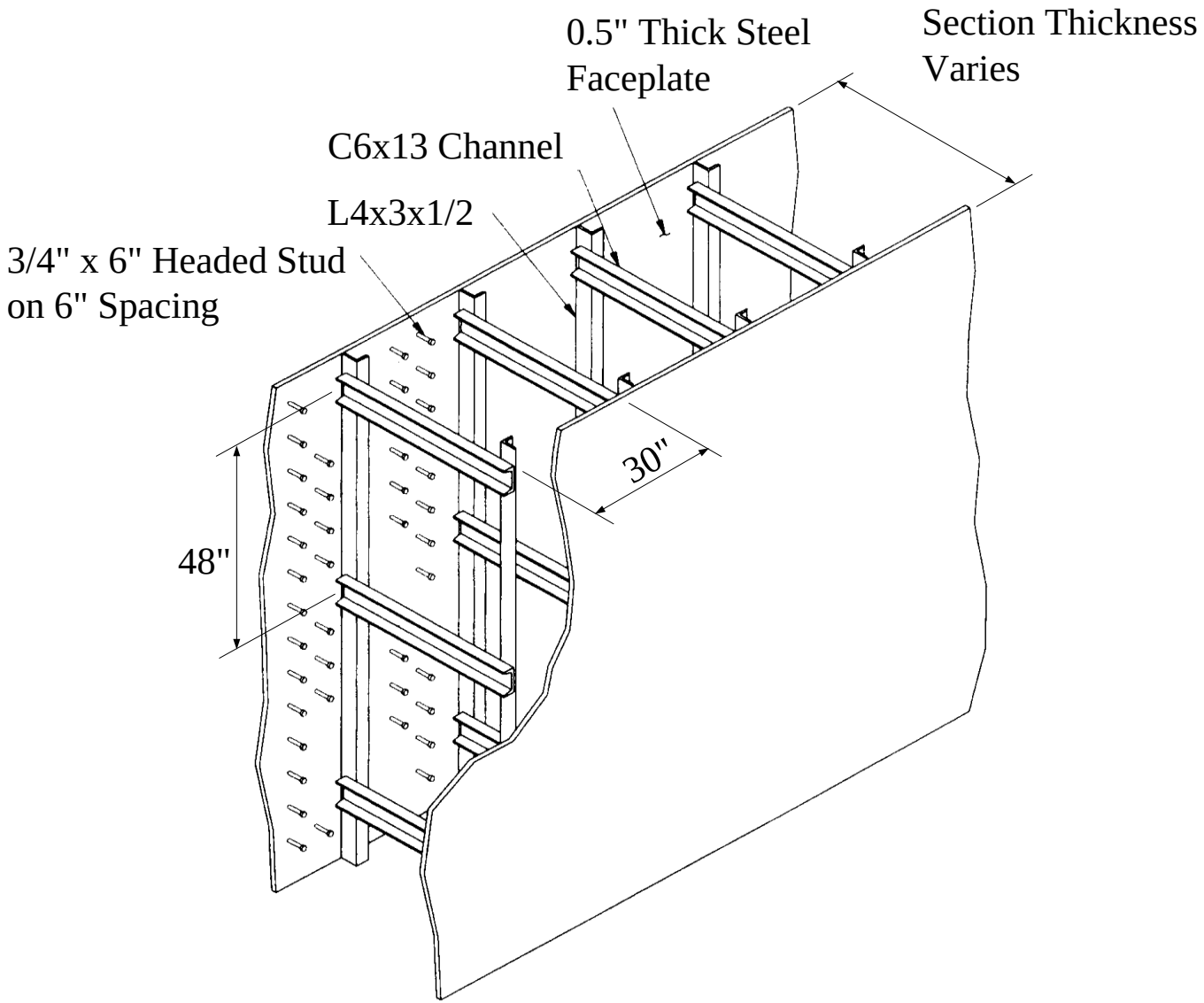
- SCANA requested CB&I leadership:
  - To review the impact of Lake Charles
  - Provide module delivery dates in which they had complete confidence

- The preliminary review indicates the in-service:
  - For Unit 2 likely ranges from Q4 2017 – Q1 2018 (due to delay in submodules)
  - Unit 3 is expected to be similarly delayed

- While we do not have a specific date, we are confident this new range for Unit 2 is within the 18-month PSC allowed construction contingency



# What is a Module?

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# CB&I Lake Charles Facility

**Location:** Lake Charles, Louisiana

(formerly Shaw Modular Solutions - SMS)

**Size:** 410,000 sq. ft, 120 acres

**Production Space:** 7 bays - 500’ long

**Width:** Ranges from 70’ to 110’

**Indoor Height:** Ranges from 40’ to 70’ tall, with the ability to assemble structures up to 50’ high indoors

**Weight:** Capacity in excess of 100 tons

**Storage:** Indoor warehouse

**Barge Access:** 37’ deep

**Number of Employees:** 800

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# Module Fabrication

# Module Fabrication

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# Module Fabrication

# Post Module Receipt at VCS

A CA20 sub-module being received at the VCS site

The sub-module is stored at the laydown area outside the MAB for initial inspection

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# Post Module Receipt at VCS

After inspection, the module is moved to the Cleaning Tent on site

In the Cleaning Tent, the sub-module is fitted with the latest revisions to the design and edges are prepared for welding

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# Post Module Receipt at VCS

Leaving the Cleaning Tent, the module is moved into the MAB for assembly with other CA20 sub-modules

This sub-module is being positioned inside the MAB for assembly with other CA20 sub-modules

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# Module Assembly Building

# CA20 Being Assembled in MAB

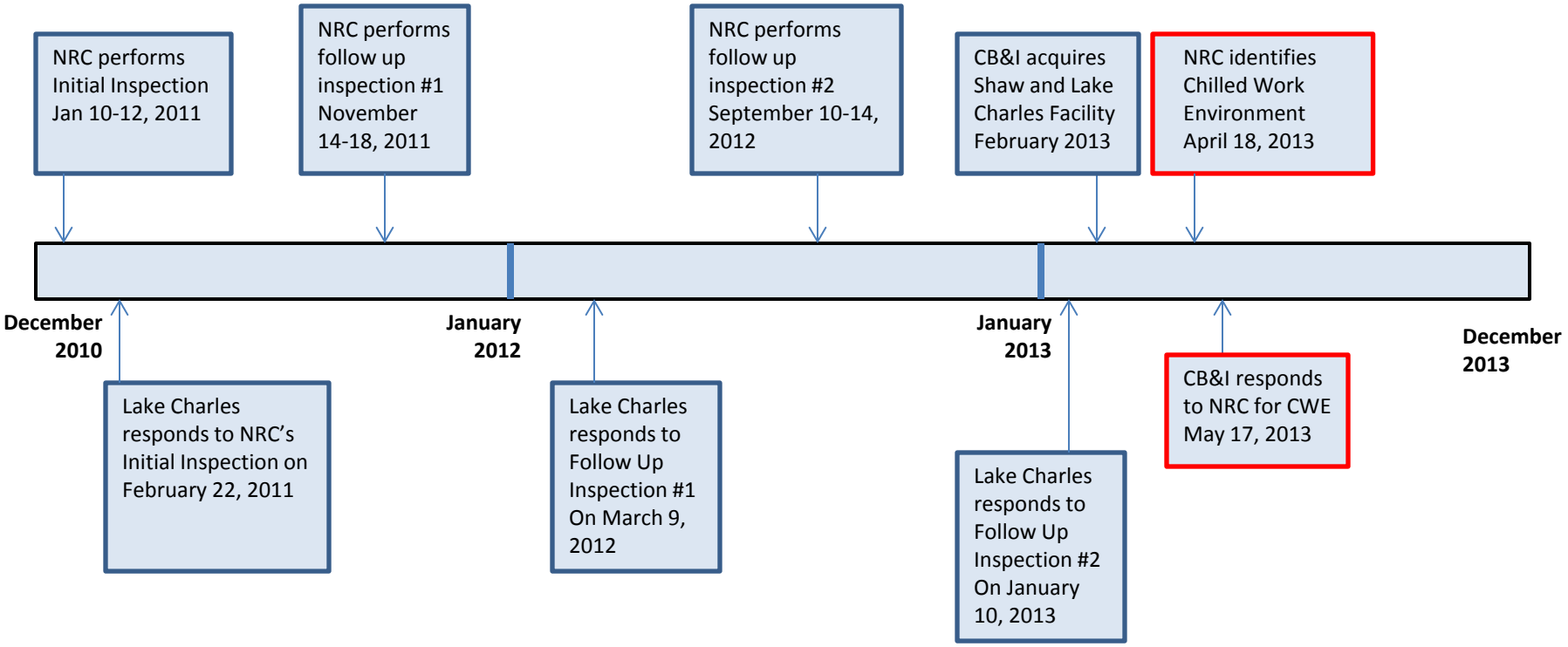
# CA20 Being Assembled in MAB

# Assembled Modules at Sanmen Unit 1

# Challenges to Production

- NRC expectations not met
- Management turnover
  - senior leadership weaknesses within facility
- Nuclear safety culture
  - chilled work environment letter from NRC
  - corporate senior leadership team (Shaw) not effective

# NRC Interaction Timeline

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# NRC January 2011 Inspection

- NRC requested SMS to respond to the following:
  - programmatic and technical challenges previously identified and how they will be addressed
  - Date SMS plans to be in full production of modules
  - Expected date of first shipment of modules

# SMS Response to NRC

- SMS communicated to NRC areas identified as challenges since initiation of fabrication in May 2010
- Commonality of issues was noted
- Issues noted considered feedback from Shaw Nuclear, SCANA and Southern

# SMS Response to NRC

- SMS communicated to NRC an expectation to be in a high level of production of structural modules by June 2011

- SMS expected to ship the first structural sub-module the end of June 2011

# CB&I Acquisition of Shaw

- Acquisition date: February 2013
- A number of senior leaders not retained
- Changed name from Shaw Modular Solutions (SMS)to CB&I Lake Charles

# CB&I Senior Management Commitment

- Committed to addressing Lake Charles issues
- Committed to better alignment of project site team and Lake Charles
- Monitoring leadership / performance in Lake Charles
- Outscoping of work to other fab shops and to the project site
- Will take some time to effect sustainable change

# SCE&G Insights

- SCE&G impression of new CB&I management team has so far been favorable
- We continue to monitor adherence to production goals
- Recent sub module delivery commitments have been met

# Activities at the Site

- World's largest derrick (crane) in use
- Training on simulators
- Placed CV lower bowl
- Welding U2 CV rings
- Switchyard – energized
- Receiving CA-20 submodules
- Erecting cooling towers
- Assembling condensers
- Placed U3 mudmats and vapor barrier
- Poured U2 nuclear island and turbine building basemat
- Completed U2 turbine building lower level walls
- Placed U2 CR-10 module on nuclear island basemat
- Placed U2 CV bottom head
- Erecting U3 Basemat rebar cage

# VCS 2 & 3 Aerial View

# Unit 2 Nuclear Island (Pre 1st Nuclear Concrete Pour)

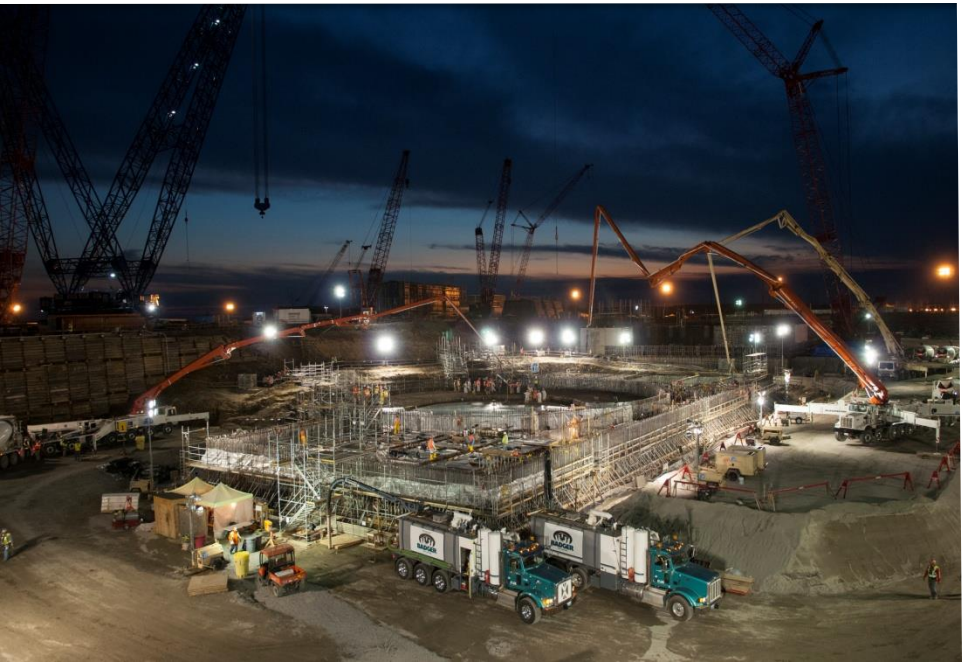
Forming- No Concrete placed March 2012

Dental Concrete April 2012

Rebar Cage February 2013


Mud mat July 2012

# Unit 2 Nuclear Island (1st Nuclear Concrete Pour)

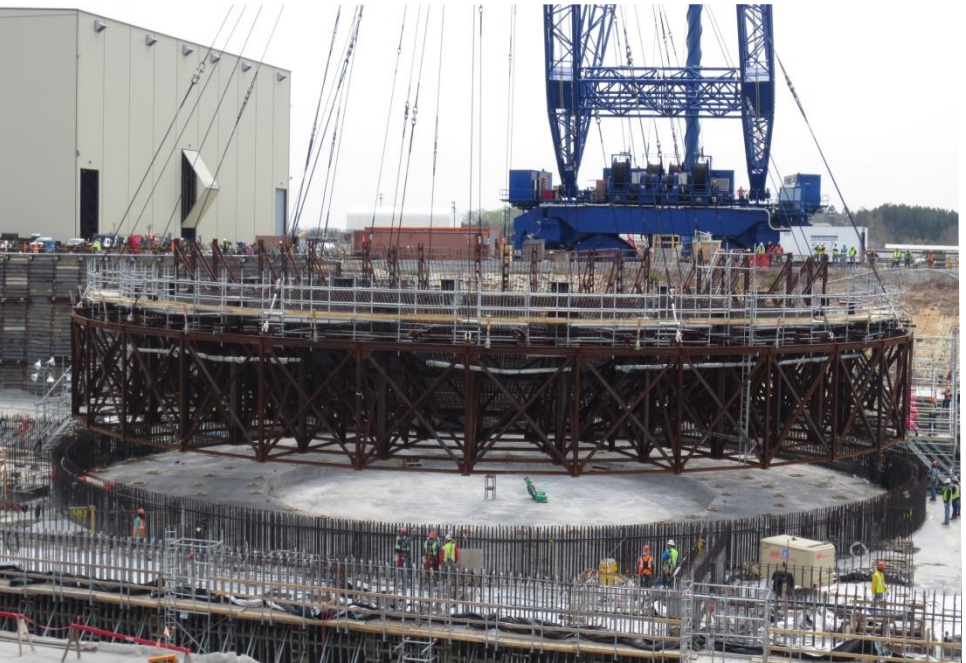


# Video #1

## SCE&G Completes First Nuclear Concrete Placement

March 2013:
Timelapse of 51.5 hrs of work
(1:47)

# Placement of Unit 2 Module CR-10

# Video #2

SCE&G Lifts
CR-10 Component
April 2013 Timelapse
(:16)

# Unit 2 Nuclear Island

# Transport of CV Bottom Head

# Video #3

SCE&G Lifts
CVBH Component
May 2013 Timelapse
(:16)

# Unit 2 Nuclear Island

Placement of the Containment Vessel Bottom Head

# Sanmen Unit 1 in China

# Containment Vessel

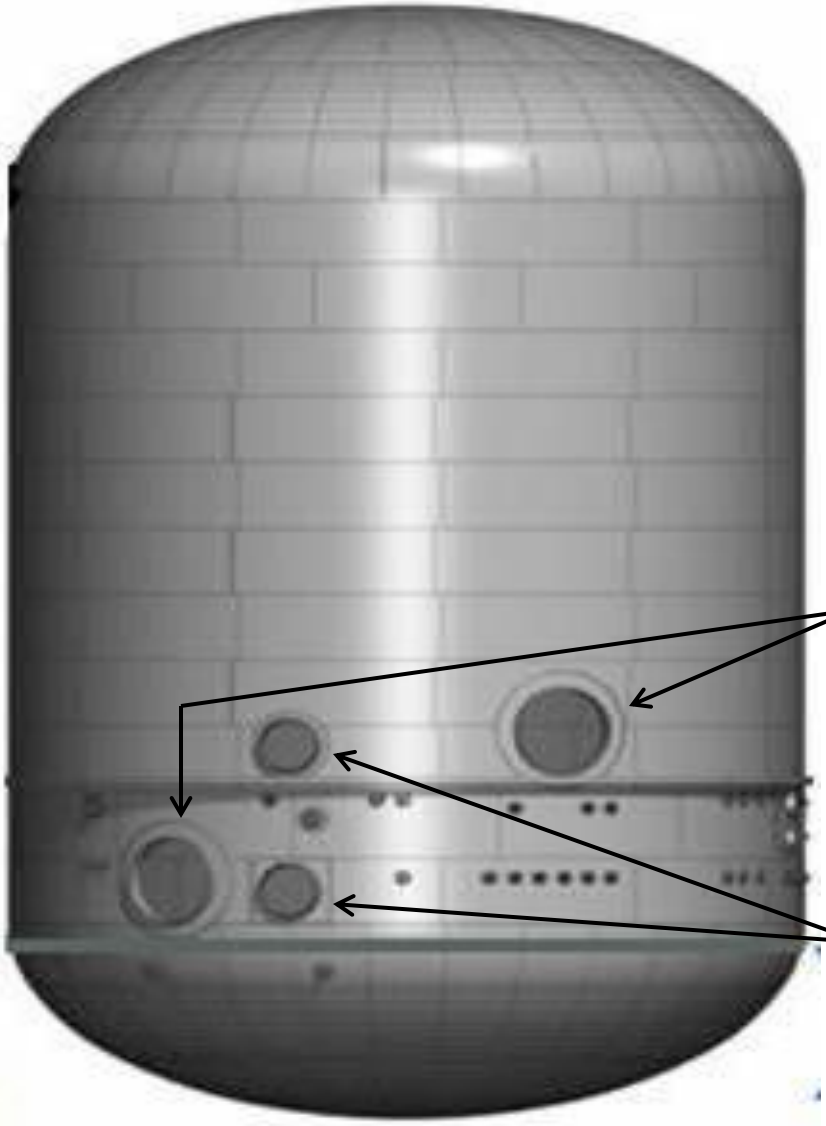
Top Head

Ring 3

Ring 2

Ring 1

Bottom Head

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# Unit 2 Containment Vessel Fabrication



# Unit 3 Nuclear Island

# Unit 2 Turbine Building

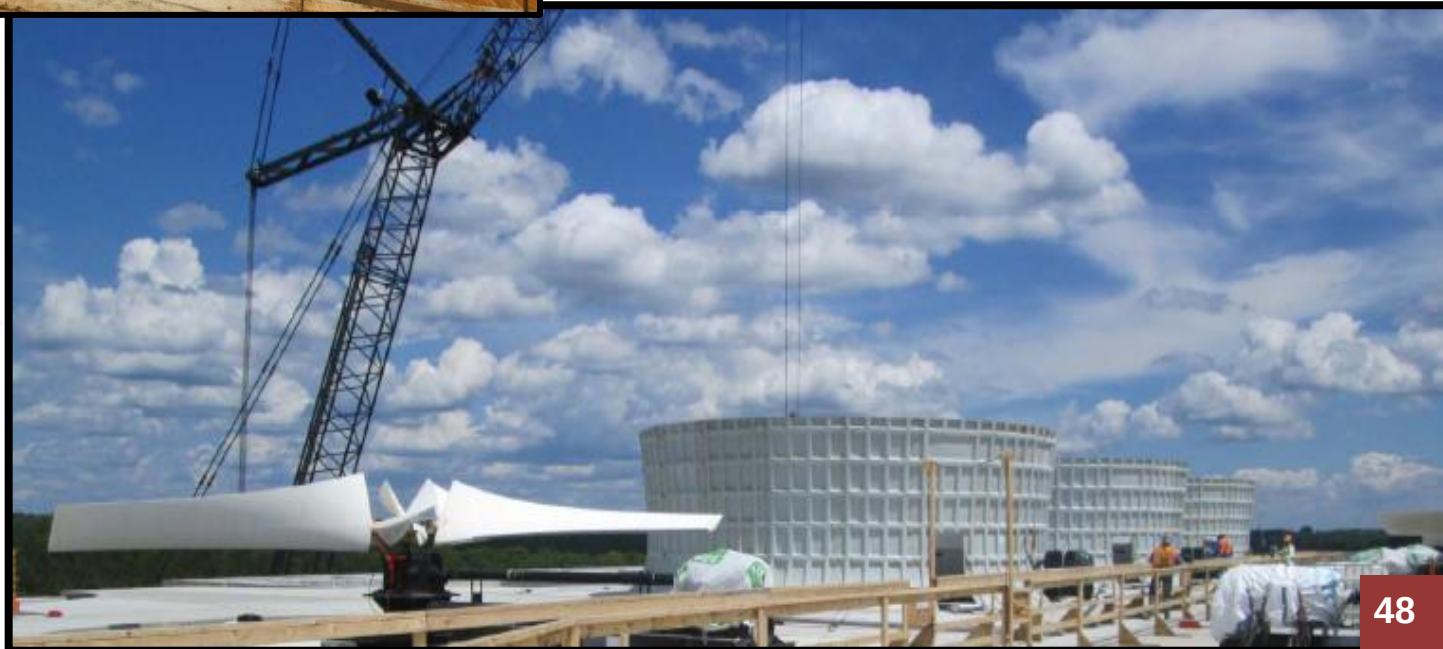
# Unit 2 Condenser Lower Shells

# Unit 2 Condenser Upper Shells

# Unit 2 Cooling Tower

Cooling Tower 2A
South Side

Mechanical & Shroud Installation



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# Switchyard

- **Completed during 4th quarter of 2012**
- **Energized and tested during January of 2013**

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# New Nuclear Transmission

- **259 circuit miles of 230 kV lines**
- **3 major line segments**
- **In-service date 2017**

# New Nuclear Transmission

- **VCS-Killian 230 kV Line – 95% complete.**
- **VCS-Lake Murray 230 #2 and Segment of the VCS2-St. George 230 #1 – 60% complete.**
- **The Remaining Segment of VCS-St. George 230 kV #1 and the VCS-St. George 230 kV #2 – Currently in Engineering and Design phase.**

# Control Room Simulator

# Control Room Simulator

# Control Room Simulator

# Premier Technologies - Idaho

U2 Integrated Head Package Fit-up

Integrated Head Package Lift Rig

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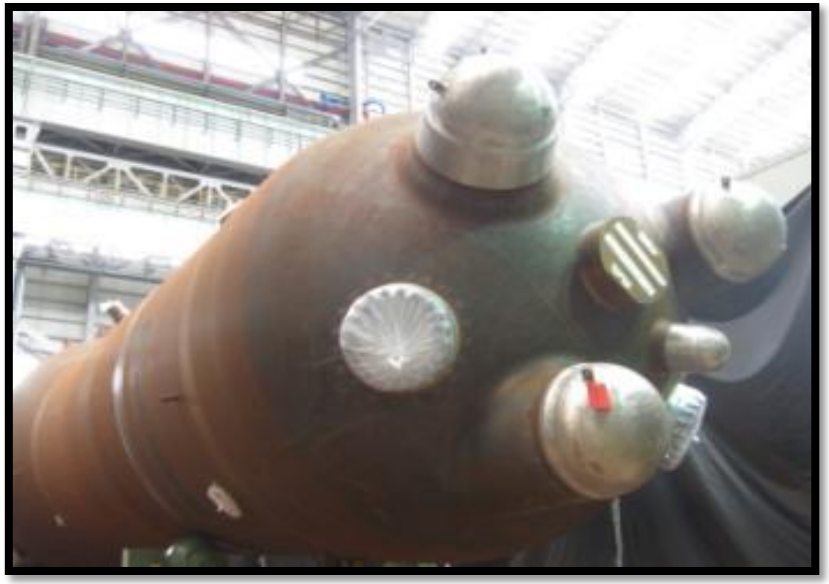
# Doosan Manufacturing

Unit 2 Reactor Vessel Shipment

Unit 2 Closure Head Shipment



Unit 2A Steam Generator

Unit 2B Steam Generator

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# Reactor Vessel at Port of Charleston


# Mangiarotti Manufacturing

Unit 2 Core Makeup Tank

Unit 3 PRHR Frame

Unit 2 Accumulator Tank

Unit 2 PRHR

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# Main Step-up Transformer

Main Stepup Transformer (1 Phase)

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# Toshiba, Keihin - Japan

Generator Rotor

Low Pressure “A” Turbine

Low Pressure “B” Turbine
– Prep for Blade Assembly

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# Deaerator Delivery

**140 ft Long**
**18 ft Diameter**
**300 tons**

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# Deaerator Transport – through Town of Bishopville

# Links to Referenced Materials:

- Base Load Review Act: http://www.scstatehouse.gov/sess117_2007-2008/bills/431.htm
- Commission Order No. 2009-104(A): http://dms.psc.sc.gov/pdf/orders/5E3440FB-FC31-8115-18C5057D060BF8EF.pdf
- Commission Order No. 2010-12: http://dms.psc.sc.gov/pdf/orders/6600E655-DB88-C849-33F254D73DE0232A.pdf
- Commission Order No. 2011-345: http://dms.psc.sc.gov/pdf/orders/FA669ED4-A4F3-6D8E-C2A260E22A92AFE5.pdf
- Commission Order No. 2012-884: http://dms.psc.sc.gov/pdf/orders/3BA3336C-155D-141F-1D7ADCA5C17C637A.pdf
- Public Version of SCE&G's Quarterly Report for period ending Mar. 31, 2013 (filed May 13, 2013): http://dms.psc.sc.gov/pdf/matters/3480DE86-155D-141F-1DBDC88E1282E716.pdf
- Letter from NRC to Shaw Modular Systems (SMS) re: January 2011 inspection, dated Jan. 24, 2011: http://pbadupws.nrc.gov/docs/ML1101/ML110190676.pdf
- Response from SMS to NRC re: January 2011 inspection, dated Feb. 11, 2011: http://pbadupws.nrc.gov/docs/ML1105/ML110550458.pdf
- Letter from NRC to CB&I re: Chilled Work Environment, dated Apr. 18, 2013: http://pbadupws.nrc.gov/docs/ML1309/ML13092A077.pdf
- Response from CB&I to NRC re: Chilled Work Environment, dated May 17, 2013: http://pbadupws.nrc.gov/docs/ML1314/ML13149A351.pdf

# *Questions*